July 21, 2004

MEMORANDUM TO: Joseph G. Giitter, Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards

THRU: Brian W. Smith, Chief /RA/
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

FROM: Timothy C. Johnson /RA/
Senior Mechanical Systems Engineer
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

SUBJECT: JULY 8, 2004, MEETING SUMMARY: LOUISIANA ENERGY SERVICES CRITICALITY ISSUES MEETING

On July 8, 2004, U.S. Nuclear Regulatory Commission (NRC) staff met with management staff from Louisiana Energy Services (LES) to discuss criticality and Integrated Safety Analysis issues applicable to the LES gas centrifuge uranium enrichment plant project proposed to be located in Eunice, New Mexico. I am attaching the meeting summary for your use. This summary contains no proprietary or classified information.

Docket: 70-3103

Attachment: Louisiana Energy Services
Meeting Summary

cc:
William Szymanski/DOE
Monty Newman/Hobbs
Peter Miner/USEC
Glen Hackler/Andrews
Dennis Holmberg/Lea County
Michael Marriotte/NIRS
Derrith Watchman-Moore/NM
Clay Clark/NMED
Lindsay Lovejoy/NIRS
Claydean Claiborne/Jal
James Curtiss/W&S
Betty Richman/Tatum
William Floyd/New Mexico
Richard Ratliff/Texas
Jerry Clift/Hartsville
Joseph Malherek/PC
Patricia Madrid/NMAG
Rod Krich/LES
Troy Harris/Lovington
James Ferland/LES
James Brown/Eunice
Lee Cheney/CNIC
CO'Claire/Ohio
Ron Curry/NMED
Glen Smith/NMAG

MEMORANDUM TO: Joseph G. Giitter, Chief
Special Projects Branch
Division of Fuel Cycle Safety
and Safeguards

THRU: Brian W. Smith, Chief /RA/
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

FROM: Timothy C. Johnson /RA/
Senior Mechanical Systems Engineer
Gas Centrifuge Facility Licensing Section
Special Projects Branch, FCSS

SUBJECT: JULY 8, 2004, MEETING SUMMARY: LOUISIANA ENERGY SERVICES CRITICALITY ISSUES MEETING

On July 8, 2004, U.S. Nuclear Regulatory Commission (NRC) staff met with management staff from Louisiana Energy Services (LES) to discuss criticality and Integrated Safety Analysis issues applicable to the LES gas centrifuge uranium enrichment plant project proposed to be located in Eunice, New Mexico. I am attaching the meeting summary for your use. This summary contains no proprietary or classified information.

Docket: 70-3103

Attachment: Louisiana Energy Services
Meeting Summary

cc:

William Szymanski/DOE	Claydean Claiborne/Jal	Rod Krich/LES
Monty Newman/Hobbs	James Curtiss/W&S	Troy Harris/Lovington
Peter Miner/USEC	Betty Richman/Tatum	James Ferland/LES
Glen Hackler/Andrews	William Floyd/New Mexico	James Brown/Eunice
Dennis Holmberg/Lea County	Richard Ratliff/Texas	Lee Cheney/CNIC
Michael Marriotte/NIRS	Jerry Clift/Hartsville	CO'Claire/Ohio
Derrith Watchman-Moore/NM	Joseph Malherek/PC	Ron Curry/NMED
Clay Clark/NMED	Patricia Madrid/NMAG	Glen Smith/NMAG
Lindsay Lovejoy/NIRS		

DISTRIBUTION: Docket: 70-3103

NMSS r/f	FCSS r/f	SPB r/f	RPierson
JHolonich	JGiitter	HFelsher	WTroskoski
YFaraz	LBerg	JOlivier	RWescott
KMorrisey	LClark/OGC	ACoggins/OGC	MDelligatti/DWM
MGalloway	MWong/DWM	SFlanders/DWM	KEverly/NSIR
SGagner/OPA	DMcIntyre/OPA	RVirgilio/OSTP	TCombs/OCA
DAyres/Reg II	DSeymour/RegII	JHenson/RegII	RHannah/RegII
KClark/RegII	KO'Brien/Reg III	VMitlyng/RegIII	DHartland/Reg II
WMaier/RegIV	RTrojanowski/RegII	SChidakel/OGC	Hearing file

LES website - Yes

(Package) ML042020419 (Memo) ML042020430 (Attachments) ML042030213

OFC	SPB		SPB		SPB	
NAME	TCJohnson:os		LMarshall		BSmith for	
DATE	07/20/04		07/20 /04		07/21/04	

C = COVER **E = COVER & ENCLOSURE** **N = NO COPY**

OFFICIAL RECORD COPY

Summary of
Louisiana Energy Services Criticality Issues Meeting

Dates: July 8, 2004

Place: U.S. Nuclear Regulatory Commission (NRC) offices
Rockville, MD

Attendees: See Attachment 1

Purpose: The purpose of this meeting was to discuss nuclear criticality safety and Integrated Safety Analysis (ISA) issues applicable to the proposed Louisiana Energy Services (LES) gas centrifuge uranium enrichment plant project. The meeting agenda is in Attachment 2.

Discussion:

After introductions, W. Troskoski presented background information on the issues to be discussed (see Attachment 3). The two issues are: (1) the separation of the ISA summary from the rest of the application: and (2) identification of favorable geometry equipment as items relied on for safety (IROFS). Mr. Troskoski provided information on the applicable regulations related to these issues and the NRC concerns with the responses previously provided by LES to NRC Requests for Additional Information (RAIs).

In the LES application, LES provided its ISA summary as an integral part of the application. In the NRC RAI dated April 19, 2004, NRC staff requested that LES separate the ISA summary from the rest of the application. This request was made because under 10 CFR 70.65(b), NRC cannot incorporate the ISA summary into the license. For materials licenses, NRC incorporates the license application into the license by reference. Without a clear designation of what constitutes the ISA summary, NRC staff cannot fulfill the above separation requirement.

For favorable geometry equipment, LES did not designate them as IROFS, because it indicated there would be no credible scenarios that could result in a criticality with these components, including process deviations. To ensure that no detrimental changes would be made to the design of these components, LES would apply the configuration management program to these components and evaluate the criticality safety consequences of any changes that might be made in the future to the component design. NRC staff, however, considered that scenarios that involve human failures in the implementation of the configuration management program could make some accident scenarios credible.

D. Williamson and R. Krich provided proposals for resolving the above issues (see Attachment 4). For the favorable geometry equipment, LES suggested identifying these components as IROFS at a high level and applying the IROFS boundary definition process to ensure that all the subcomponents of the IROFS system would be identified and covered. Quality Level 1 management measures, including the configuration management program would be applied. NRC staff, however, questioned that the IROFS identification as proposed by LES would be too general to enable NRC staff to clearly identify its function in relation to the performance requirements. NRC staff suggested that IROFS should be identified at a more detailed level, although it was not necessary to identify subcomponents at the relay switch or wiring level at this time. NRC staff recognized that the proposed IROFS boundary process would define all

the needed subcomponents for a IROFS package. At the conclusion of the discussion, LES indicated that it would reconsider its approach and request a follow-up meeting to resolve the issue.

Mr. Williamson and Mr. Krich then discussed the separation of the ISA summary from the rest of the application. It was LES' understanding that any change in the future to the ISA summary would be evaluated in accordance with the change process in 10 CFR 70.72, and, if the license application is referenced by a license condition, the 10 CFR 70.72 process would be applicable to any future changes in other parts of the application. NRC staff agreed with this statement and that, even if the ISA summary is included in the application, which is referenced by a license condition, only those changes that meet the thresholds defined in 10 CFR 70.72 would need to be submitted as an amendment request to the license. However, NRC staff indicated that under 10 CFR 70.65(b), it is required to separate the ISA summary from the license application. Mr. Krich agreed to re-assess this request. He also stated that the submittal of the revision to the Safety Analysis Report would likely be delayed from the established schedule of the end of July.

Action Items

LES to reconsider its approach for addressing geometrically safe components and for separating the ISA summary from the application.

Attachments

1. Attendee list
2. Meeting agenda
3. NRC staff handouts
4. LES presentation handouts

Louisiana Energy Services Criticality Safety Meeting
Date: July 8, 2004

NAME	AFFILIATION	PHONE	EMAIL ADDRESS
TIM JOHNSON	NRC	301-415-7294	TCJ @ NRC.GOV
Joseph Giitter	NRC	301-415-7485	JGG @ NRC.GOV
DAVID M PEPE	AREVA	978-568-2055	david.pepe@framatome-anp.com
R.M. Krich	LES	630-657-2815	rod.krich@exeloncorp.com
Larry Berg	NRC	301-415-6215	
ROBERT PIERSON	NRC / NMSS / FCSS	301-415-7213	RDP @ NRC.GOV
HARRY FELSHER	NRC/NMSS/FCSS	301-415-5521	hdf@nrc.gov
Julia Olivier	NRC/NMSS/FCSS	301-415-8048	jao@nrc.gov
DAN WILLIAMSON	LES (EXCEL SERVI)	904 272-5300	Dan@Williamsn.net
Bill Troskoski	NRC / FCSS	301-415-8026	WMT @ NRC.GOV
Lisa Clark	NRC / OGC	301-415-1571	LBC@ NRC.GOV
Susan Chidakel	NRC / OGC	301-415-1535	SSC @ NRC.GOV
Rex G Wescott	NRC / FCSS	301-415-6227	RJW @ NRC.GOV
Kevin Morrissey	NRC/NMSS/FCSS	301-415-6782	KJM @ NRC.GOV
JOSEPH MALHERBE	PUBLIC CITIZEN		

Attachment 1

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

July 1, 2004

MEETING NOTICE

Applicant:	Louisiana Energy Services Suite 610 2600 Virginia Avenue, NW Washington, DC 20037
Docket:	70-3103
Date and Time:	July 8, 2004; 1:30 P.M.
Location:	U.S. Nuclear Regulatory Commission Two White Flint North, Room T8E8 11545 Rockville Pike Rockville, Maryland 20852
Purpose:	To discuss criticality safety issues related to its application for a gas centrifuge uranium enrichment facility proposed to be constructed in Eunice, New Mexico.
NRC Attendees:	R. Pierson, J. Giitter, B. Smith, T. Johnson, H. Felsher, M. Galloway, L. Clark, and project staff
Other Attendees:	R. Krich/LES and LES project staff
Contact:	T. Johnson; 301-415-7299; tcj@nrc.gov
Category:	Category 1 Meeting: The public is invited to observe this meeting and will have one or more opportunities to communicate with the NRC after the business portion, but before the meeting is adjourned.

NOTE: NRC Meetings are open for interested members of the public to attend pursuant to the "Enhanced Public Participation in NRC Meetings; Policy Statement," 67 *Federal Register* 36920, May 28, 2002.

Attachment: Meeting agenda

cc:
James Curtiss/W&S
Peter Miner/USEC
Dennis Holmberg/Lea County
Betty Rickman/Tatum
William Floyd/NM
Derrith Watchman-Moore/NM
Jerry Clift/Hartsville
Clay Clark/NMED
Lindsay Lovejoy/NIRS
James Ferland/LES
William Szymanski/DOE
Claydean Clairborne/Jal
Monty Newman/Hobbs
Richard Ratliff/Texas
Michael Marriotte/NIRS
Joseph Malherek/PC
Patricia Madrid/NMAG
Rod Krich/LES
James Brown/Eunice
Troy Harris/Lovington
Glen Hackler/Andrews
Carol O'Claire/Ohio
Lee Cheney/CNIC
Ron Curry/MNED
Glen Smith/NMAG

Attachment 2

Louisiana Energy Services Criticality Safety Meeting Agenda
July 8, 2004

___ Purpose/Introductions

___ LES Criticality Issues Approach

___ Discussion

___ Questions and Answers

Attachment

LES Proposed Gas Centrifuge Uranium Enrichment Facility
License Application Issues

July 8, 2004

I. Separation of ISA Summary from License Application

Regulatory Requirements

§70.65(a) - Baseline design criteria.

§70.65(b) - The ISA Summary must be submitted with the license application but shall not be incorporated into the license. However, changes to the ISA Summary shall meet the conditions of §70.72.

§70.72(b) - Any change to site, structures, processes, systems, equipment, components, computer programs, and activities of personnel must be evaluated by the licensee before the change is implemented. The evaluation must determine, before the change is implemented, if an amendment to the license is required.

§70.72(c) - The licensee may make changes to site, structures, processes, systems, equipment, components, computer programs, and activities of personnel, without prior Commission approval if the change (1) does not: (i) create new types of accident sequences..., (ii) use new processes or technology...; (2) does not remove an IROFS without equivalent protection; (3) does not alter a sole IROFS; or (4) is not otherwise prohibited by license condition or order.

LES RAI Response - ISA-1

ISA Summary content will be addressed in Chapter 3 of the application.

LES has not segregated the portions of Chapter 3 required for §70.65(a) or portions that may not be required for the minimum content of either §70.65(a) or (b).

Other License Conditions incorporated the "statements, representations and conditions" in various application documents. License Conditions may not be changed under the §70.72 process.

Staff Concerns

The regulations are written in such a way as to prohibit the NRC from incorporating the ISA Summary into the license.

II Geometrically Favorable Components

Regulatory Requirements

§70.61(e) - each engineered or administrative control or control system necessary to comply with the performance requirements, shall be designated as IROFS. The safety program, established and maintained pursuant to §70.62 shall ensure that each IROFS will be available and reliable in context of the performance requirements.

§70.62(a), Safety Program: (1) shall establish and maintain a safety program that demonstrates compliance with the performance requirements; the program may be graded such that management measures applied are graded commensurate with the reduction to risk attributed to that item. Three elements of the safety program are PSI, ISA and management measures.

§70.62(c), ISA, requires an ISA that identifies (vi) each IROFS, the characteristics of its preventive, mitigative, or other safety function, and the assumptions and conditions under which the item is relied on to support compliance with the performance requirements.

§70.62(d), Management Measures, requires the establishment and maintenance of management measures to ensure compliance with the performance requirements. The measures applied to a particular engineered or administrative control or control system may be graded commensurate with the reduction of risk... and shall assure that the engineered or administrative control or control system are identified as IROFS.

§70.64(a), Baseline Design Criteria, requires licensees to maintain the application of these criteria unless the analysis performed pursuant to §70.62(c) demonstrates that a given item is not relied on for safety or does not require adherence to the specified criteria.

§70.65(b)(6) requires a list of each IROFS; (8) requires a list of sole IROFS.

LES RAI Response - ISA-45

Designs that inherently preclude "credible" events of consequence would not be identified as IROFS.

For certain designs of favorable geometry, any postulated event may be of "negligible likelihood" allowing failure of the design to be deemed a "not credible" event.

Staff Concerns

Any feature dependent upon the design, installation and maintenance by humans is subject to human error, and human error is credible.

Louisiana Energy Services - NRC Meeting

Clarification to Responses

July 8, 2004
Rockville, MD

Attachment 4

LES

Agenda

- **Introduction**
- **"Safe-by-geometry" components as IROFS**
- **Treatment of ISA Summary**
- **Change process as applied to the Licensing Basis / License Condition**
- **Summary**

"Safe-by-geometry" components as IROFS

- **Present the LES proposal on the characterization of "safe-by-geometry" components as IROFS**

LES

"Safe-by-geometry" components as IROFS

IROFS Boundary Process

- **Defining the IROFS Boundary will result in significant numbers of systems, subsystems, and components that will be considered as part of the IROFS itself**
- **Administrative IROFS will have the same rigor applied to identify "boundary" supporting systems, subsystems, and components that are required to ensure the completion of the safety function**

LES

"Safe-by-geometry" components as IROFS

IROFS Boundary Process Examples

- **Active Engineered Control** (ex: Heater Trip)
  - Sensor
  - Trip Unit
  - Heater circuit breaker
  - Wiring / cabling
  - Relays
- **Administrative Control** (ex: Cylinder Weight)
  - Sensor (weight scale)
  - Output display
  - Wiring / cabling

LES

"Safe-by-geometry" components as IROFS

Regulatory Requirements Applicable to IROFS Boundary Components

- **Quality Level 1, Management Measures, and Baseline Design Criteria apply to all IROFS boundary components**
- **Records, Reporting, and Enforcement requirements of 10 CFR 70 apply to IROFS boundary components**
- **Configuration Management requirements of 10 CFR 70.72 apply to IROFS boundary components**

"Safe-by-geometry" components as IROFS

- **Regulatory Requirements will be applied to the following IROFS boundary component examples:**

- Product piping	**- Product pumps**	**- Traps**
- Cylinders	**- Centrifuges**	**- Flex Hoses**
- Sample Bottles	**- Storage Arrays**	**- Sample Vials**
- Waste Pots (6L)	**- Waste Pots (12L)**	**- Tanks (small)**
- Vacuum Cleaners		

LES

IROFS Boundary Include "Safe-By-Geometry"

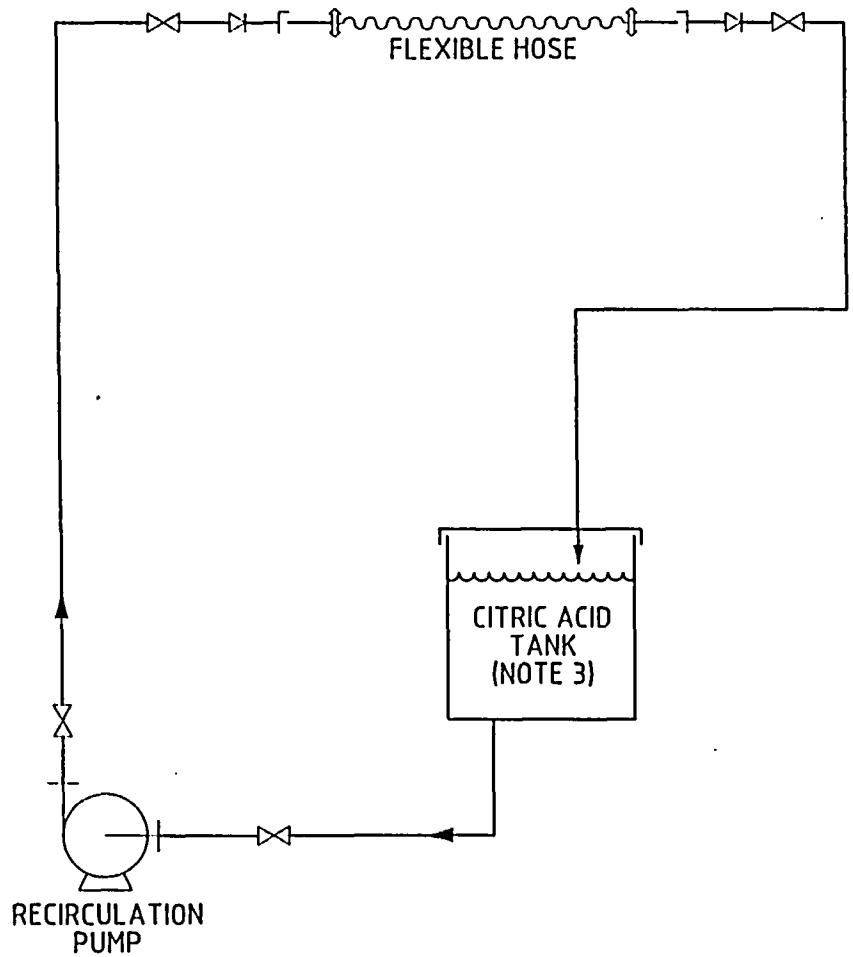
Presentation in ISA Summary

- **Not all "safe-by-geometry" IROFS boundary components are explicitly identified in the ISA Summary**
- **"Safe-by-geometry" IROFS boundary components will be identified in the ISA documentation as a result of applying the IROFS Boundary Definition procedure**

LES

NOTES

3. CITRIC ACID TANK SAFE BY SHAPE.



PARTIAL VIEW OF FIGURE 3.5-41

REFERENCE NUMBER 1500-R-1110	**FIGURE 3.5-41** PROCESS FLOW DIAGRAM DECONTAMINATION SYSTEM FOR FLEXIBLE HOSES REVISION DATE: DECEMBER 2003

Treatment of ISA Summary

Regulatory Requirement

- **Paragraph (b) of 10 CFR 70.65, "Additional content of application," states in part "the integrated safety analysis summary must be submitted with the license...application...but shall not be incorporated in the license. ..."**
- **ISA Summary was included in the National Enrichment Facility (NEF) license application**
- **LES did not consider that the entire license application would be made a condition of the license and therefore 10 CFR 70.65(b) would be satisfied**
- **Extracting the ISA Summary from the application at this point is problematic**

LES

Change process as applied to the Licensing Basis / License Condition

- **10 CFR 70.65(a) requires the license application to include "a description" of the Safety Program established under 10 CFR 70.62**
- **10 CFR 70.65(b) requires that the ISA Summary contain "description of" and "information that demonstrates" many of the same features that are required by 10 CFR 70.62, Safety program**
- **Information will be duplicated between the ISA Summary and the license application**

Change process as applied to the Licensing Basis / License Condition

LES Understanding

- **Any change to a license condition requires a license amendment (prior NRC review and approval)**
- **10 CFR 70.72, "Facility changes and change process," allows licensee to make changes to facility description in licensing basis (i.e., license application) without prior NRC approval**
- **10 CFR 70.32, "Conditions of licenses," allows licensee make other changes without prior NRC approval**
- **Benefits afforded by 10 CFR 70.72 and 70.32 are obviated by maintaining the license application as a License Condition**

LES

Change process as applied to the Licensing Basis / License Condition

- **10 CFR 70.72(c): The licensee may make changes...if the change ... (4) is not otherwise prohibited by this section, license condition, or order.**
- **Materials license makes the license application (licensing basis) a License Condition**
- **A desired change (e.g., 10 CFR 70.72) that produces the need to revise the licensing basis means that the change can not be made by the licensee (i.e., requires a license amendment)**

Change process as applied to the Licensing Basis / License Condition

Enforcement if License Application is not a License Condition

- **Compliance with the License inherently includes compliance with change control provisions in 10 CFR 70.32 as well as 10 CFR 70.72**
- **Non-adherence to "statements, representations, and conditions" in the license application (as amended under licensee control or NRC amendment) can be cited against the License or as a "change" in violation of 10 CFR 70.72**

LES

Change process as applied to the Licensing Basis / License Condition

- **Regulations contain adequate controls and provide adequate framework for enforceability**

- **10 CFR 70.72 reporting of changes (summaries and/or ISA Summary changed pages) keeps the NRC informed and the basis documents updated**

Summary